CONTENTS OF VOLUME X.

NUMBER XXVIII.

Page.

ART I. Review of the Geological Report on the Chippewa Land District of Wisconsin and part of Iowa, made in the year 1847, under the direction of D. D. Owen, M.D., - - 1

II. On Rutilated Quartz Crystals from Vermont, and Phenomena connected with them; by FRANCIS ALGER, A.M., - - 12

III. Examination of Kirkwood's Analogy; by SEARS C. WALKER, 19

IV. On Kirkwood's Analogy; by Dr. B. A. GOULD, Jr., - - 26

V. On the Natural Terraces and Ridges of the country bordering Lake Erie; by CHARLES WHITTLESEY, - - - - - 31

VI. On the Quantity of Heat evolved from Atmospheric Air by Mechanical Compression; by JOHN GORRIE,* M.D., - - 39

VII. On the Computation of the Sun's Daily Intensity at the exterior surface of the Earth, and Secular Changes of Heat; by L. W. MEECH, A.B., - - - - - - - - 49

VIII. Notice of Fossil Bones from the neighborhood of Memphis, Tennessee; by JEFFRIES WYMAN, M.D., - - - - 56

IX. On the Geological Structure of Keweenaw Point; by Dr. C. T. JACKSON, - - - - - - - - - 65

X. Analysis of Algerite; by RICHARD CROSSLEY, - - - 77

XI. On the Telluric Bismuth of Virginia; by Dr. C. T. JACKSON, 78

XII. On a supposed New Mineral Species; by HENRY WURTZ, 80

XIII. The Erratic Phenomena about Lake Superior; by Prof. AGASSIZ, - - - - - - - - - - - 83

XIV. Crystallized Gold from California; by FRANCIS ALGER, 101

SCIENTIFIC INTELLIGENCE.

Chemistry and Physics.—On the Diffusion of Liquids, by Professor GRAHAM, F.R.S., 106.—On the Occurrence of Formic Acid in Stinging Nettles, by Dr. GORUP-BESANEZ, 108.—Method of Preparing Theine, by H. HEINSIUS: Test of the Presence of Sugar, 109.—On Iodine in fresh water Plants, by AD. CHATIN, 110.—Analysis of certain gold-colored Bronze Antiquities found at Dowris, Ireland, by THOS. L. COOKE: Mannite, its atomic Weight and Compounds, by Dr. W. KNOP, 111.—On Dulcose, a Homologue of Grape Sugar, by A. LAURENT: Sugar in the Liver, 112.—Sugars of Honey: Sugar in the flowers of

* Incorrectly spelt GARRIC.

Rhododendron ponticum: Sugar of milk in the Cotyledons of seeds: Production of Sugar in the urine by wounding the brain, 113.

Mineralogy and Geology.—Notice of Trilobites in the Cabinet of Dr. Julius S. Taylor, 113.—Observations on the Mica Family, by J. D. DANA, 114.—Spodumene, 119.—Anhydrous Prehnite: On a new crystalline form of Staurotide, and Isomorphism of Staurotide with Andalusite and Topaz, by J. D. DANA: Platinum of California: Fowlerite, 121.

Zoology.—Remark on the Genus Nocticula of J. V. Thompson, by J. D. DANA: Observations on some Crustacea, in the collections of the Academy of Natural Sciences at Philadelphia, by Prof. L. R. GIBBES, 122.—Conspectus Crustaceorum quæ in Orbis Terrarum circumnavigatione, CAROLO WILKES e Classe Reipublicæ Fœderatæ Duce, lexit et descripsit J. D. DANA: Oithona plumifera of W. Baird: On the circulation and digestion in the lower animals, by Professor AGASSIZ, 123.—Low State of Development of Mammals and Birds in Australia and New Zealand, 124.—New Species from Lake Superior described by M. Agassiz, 125.

Miscellaneous Intelligence.—Prof. C. U. Shepard on Meteorites, 127.—On the increase of the Nail and the Hair in Man, by M. BERTHOLDT: On the Extinction of Light in the Atmosphere, by W. S. JACOB, Esq., H.E.I.C., 129.—Climate of Australia, by JOHN GOULD, Esq., F.R.S., F.G.S., &c., 131.—On the Resuscitation of Frozen Fish, by Prof. O. P. HUBBARD, 132.—Geology in the State of Mississippi: On the Purification of Coal-Gas, by R. LAMMING, 133.—Analysis of Water from a Hot Spring in the region of the Great Salt Lake, by C. T. JACKSON: Wild Animals of Africa: Tin in Plumbaginous Slates, 134.—On Fossil Rain Drops, 135.—Expedition in Search of Sir John Franklin: Discovery of a Comet: American Association for the Advancement of Science, 136.—*Obituary.*—Lieut. Henry Eld, Jr.. U.S.N.: M. Gay-Lussac, 137.—M. P. Louyet: M. Ducrotay de Blainville: M. Kunth: Dr. Prout, 138.

Bibliography.—A System of Mineralogy, comprising the most recent discoveries; including full descriptions of Species and their Localities, Chemical Analyses and Formulas, Tables for the Determination of Minerals, and a Treatise on Mathematical Crystallography and the Drawing of Figures of Crystals; by JAMES D. DANA, A.M., etc., 138.—The Unity of the Human Races proved to be the Doctrine of Scripture, Reason and Science, with a Review of the present position and theory of Prof. Agassiz, by the Rev. THOS. SMYTH, D.D.: Report of Prof. ALEXANDER D. BACHE, Superintendent of the (U. S.) Coast Survey, showing the progress of that work for the year ending Oct., 1849, 143.—An Elementary Course of Geology, Mineralogy and Physical Geography, by DAVID T. ANSTED, M.A., F.R.S., &c., 144.—The Natural History of the British Entomostraca, by W. BAIRD, M.D., F.L.S., etc.: Index Palæontologicus, oder übersicht der bis jetzt bekannten Fossilen Organismen, unter Mitwirkung der HH. Prof. H. R. GÖPPERT und HERM. VON MEYER, bearbeitet von Dr. H. G. BRONN, 145.—Elements of Scientific Agriculture, or the connection between Science and the Art of Practical Farming, by Prof. JOHN P. NORTON, M.A., 146.—A Treatise on Algebra, for the use of Schools and Colleges, by S. CHASE: Minerals and their uses, in a Series of Letters to a Lady, by J. R. JACKSON, F.R.S.: Third Annual Report of the Regents of the University, of the condition of the State Cabinet of Natural History and the Historical and Antiquarian Collection annexed thereto, 147.—Zoology of the Voyage of H. M. S. Samarang under the command of Capt. Sir Edward Belcher, during the years 1843-1846, by ARTHUR

ADAMS, F.L.S., and ADAM WHITE, F.L.S.: Hunt's Merchant's Magazine and Commercial Review: Astronomical Journal, Cambridge, 148.—Scientific Annual: Iconographic Encyclopædia, by G. HECK, translated by Professor S. F. BAIRD, 149.

List of Works, 149.

APPENDIX.

Report on the Experience of the Coast Survey in regard to Telegraph Operations, for determination of Longitude, &c., 151.

NUMBER XXIX.

Page.

ART. XV. Observations on the Contrast in the Physical Features and Resources between the Old World and the New World; by Prof. ARNOLD GUYOT, - - - - - - - - 161

XVI. On the relation of the Laws of Mechanics to Perpetual Motion; by JEREMIAH DAY, - - - - - - - - 174

XVII. Contributions to the Mycology of North America; by Rev. M. J. BERKELEY, of England, and Rev. M. A. CURTIS, of South Carolina, - - - - - - - - - - 185

XVIII. Experimental Researches in Electricity.—Twenty-third Series; by MICHAEL FARADAY, Esq., D.C.L., F.R.S., etc., 188

XIX. Notices regarding the plants yielding the fibre from which the Grass-cloth of China is manufactured. Communicated by Dr. D. J. MACGOWAN, in a letter to Sir JAMES HUME, Hon. Sec. of the Agric. Society of India, - - - - 207

XX. On the Quantity of Heat evolved from Atmospheric Air by Mechanical Compression; by JOHN GORRIE, M.D., - - 214

XXI. Notice of Remains of Vertebrated Animals found at Richmond, Virginia; by JEFFRIES WYMAN, M.D., - - - 228

XXII. On the Volcanic Eruptions of Hawaii; by JAMES D. DANA, 235

XXIII. Mineralogical Notices, - - - - - - - - 245

SCIENTIFIC INTELLIGENCE.

Chemistry and Physics.—On the Preparation of Metacetonic Acid, by Dr. F. KELLER: On the Amid Compounds of Tungsten, by Prof. WÖHLER, 256.—On the Decomposition of Iodid of Potassium, by Prof. SCHÖNBEIN: On Furfurol, by A. CAHOURS, 257.—On the action of Chlorine upon Lactic Acid, by G. STAEDELER: Preparation of Oxychlorid of Carbon, by A. W. HOFMANN: On the Preparation of pure oxyd of Cobalt, by P. LOUYET: On the action of heat upon the Caprylate of Lime, by G. GUCKELBERGER, 258.—On the determination of Nitrogen, by NOELLNER: Examination of Castoreum, by F. WOEHLER: On the Composition and Metamorphoses of Conine, by J. BLYTH, 259.—On the Composition and Metamorphoses of Piperine, by TH. WERTHEIM: On a New Gun-

powder, by M. Augendre, 260.—Purification and properties of Chloroform, by Prof. Wm. Gregory, M.D., 261.—On the preparation of Chlorate of Potash: Aspartic Acid from Bimalate of Ammonia, by M. Dessaignes, 262.—Stibethyle, by C. Löwig and E. Schweitzer: Action of Nitric Acid on Rhubarb, 263.—On the Atomic Weight of Molybdenum, by N. J. Berlin, 264.

Mineralogy and Geology.—On a new Spodumene Locality at Norwich, Mass., by C. Hartwell, and E. Hitchcock, Jr., 264.—Age of the Nummulitic formation of the Alps, 265.—On the Geographical Limits of the Chalk Formation, by Leopold von Buch, 268.

Zoology.—Contributions to the Natural History of the Acalephæ of North America, by L. Agassiz, 272.—On the Structure of Nummulina, by W. B. Carpenter, M.D., F.R.S., 275.

Miscellaneous Intelligence.—On the Negro Races of Oriental Africa, by M. Serres: Fabrication of Zinc compounds not injurious to health, 276.—Anchor-Ice, by Prof. C. Dewey, 277.—Discovery of the Great Lake "Ngami," of South Africa, 278.—Comparison of Fahrenheit and Centigrade Thermometers, 281.—Discovery of an Infusorial Stratum in Florida, by Prof. J. W. Bailey: On the Application of Magnetism as a Motive Power, by R. Hunt, 282.—Improvements in the Air-pump, by Mr. Varley, Jr., 284.—On Photography on Glass, by T. A. Malone, 285.—Lead Statuary, 286.—British Association: Sun and Moon: On a cloud of dust which obscured the sun for two days in Russia, on the 29th and 30th of April, 1840, during a clear sky and quiet weather, by Ehrenberg: American Zoological Journal: Discovery of the Antarctic Continent: Meeting of the American Association for the Advancement of Science at New Haven, 287.—Proceedings of the American Association for the Advancement of Science; third Meeting, held at Charleston, S. C., March, 1850, 293.—Editorial notice with reference to the article on the Electro-Chronograph, in Volume III, 295.—*Obituary.*—M. de Blainville, 296.—Christian VIII. King of Denmark, 297. D. Lapham: Prof. Troost, 298.

Bibliography.—Tabulæ Atomicæ: Chemical Tables for the Calculation of Quantitative Analyses of H. Rose, 298.—First Biennial Report on the Geology of Alabama; by M. Tuomey, 299.—A Treatise of Plane and Spherical Trigonometry; by William Chauvenet, A.M., 300.—A descriptive account of the Freshwater Sponges of the Island of Bombay with observations on their structure and development; by H. J. Carter, Esq., 301.—Recherches Anatomiques et Zoologiques faites pendant un Voyage sur les cotes de la Sicile et sur divers points du littoral de la France; par MM. Milne Edwards, A. de Quatrefages, and Emile Blanchard: Les Alpes, Journal des Sciences Naturelles, Agricoles, Medicales, Physiques et Astronomiques, 303.

NUMBER XXX.

Page.

Art. XXIV. Address of Sir David Brewster before the Twentieth Meeting of the British Association at Edinburgh, July, 31, 1850, - - - - - - - - - - - - 305

XXV. On the proper Height of Lightning Rods; by Prof. Elias Loomis, - - - - - - - - - - 320

XXVI. On the Electrical Phenomena of Certain Houses; by Prof. Elias Loomis, - - - - - - - - - 321

Page.

XXVII. On a new method of decomposing Silicates in the process of Analysis; by HENRY WURTZ, - - - - - 323

XXVIII. On the availability of the Greensand of New Jersey as a source of Potash and its Compounds; by HENRY WURTZ, 326

XXIX. On the Diurnal and Annual Variations in the Declination of the Magnetic Needle, and in the Horizontal and Vertical Magnetic Intensities; by Prof. W. A. NORTON, - - 330

XXX. On the Analogy between the mode of Reproduction in Plants and the "Alternation of Generations" observed in some Radiata; by JAMES D. DANA, - - - - - 341

XXXI. On Electro-magnetism as a Moving Power; by Prof. CHAS. G. PAGE, - - - - - - - - - - 343

XXXII. Singular property, and extraordinary size and length of the Secondary Spark; by Prof. CHAS. G. PAGE, M.D., - 349

XXXIII. On Rutile and Chlorite in Quartz; by Professor O. P. HUBBARD, M.D., - - - - - - - - - - 350

XXXIV. Occurrence of Crystallized Oxyd of Chromium in furnaces for the manufacture of Chromate of Potash; by W. P. BLAKE, - - - - - - - - - - 352

XXXV. Memoir on Emery; by J. LAWRENCE SMITH, M.D.—First part—On the Geology and Mineralogy of Emery, from observations made in Asia Minor, - - - - - - 354

XXXVI. On American Spodumene; by GEO. J. BRUSH, - - 370

XXXVII. Optical Examination of several American Micas; by B. SILLIMAN, Jr., A.M., M.D., &c., - - - - - 372

XXXVIII. Analyses of Phlogopite from St. Lawrence County, N. Y.; by WM. J. CRAW, - - - - - - - - - 383

Extracts from the Proceedings of the Twentieth Meeting of the British Association, held at Edinburgh, July, 1850:—

On Atlantic Waves, their Magnitude, Velocity, and Phenomena, by Dr. SCORESBY, 386.—On Metallic Reflection, by Prof. G. G. STOKES, 391.—On a Fictitious Displacement of Fringes of Interference; by Prof. G. G. STOKES: On the Refractive Indices of several Substances, by the Rev. Prof. POWELL, 392.—On the Magneto-optic Properties of Crystals, and the Relation of Magnetism and Diamagnetism to Molecular Arrangement; by Messrs. J. TYNDALL and HERMANN KNOBLAUCH, 393.—On the Polarizing Structure of the eye, by Sir D. BREWSTER: On Haidinger's Brushes, by Prof. G. G. STOKES, 394.—On the Six Climates of France, by Dr. MARTINS: On Hourly Meteorological Observations made at Thibet, at an elevation of 18,400 feet, by Lieut. STRACHEY, R.E., 396.—On the Causes of the Rise of the Isothermal Lines in the Winters of the Northern Hemisphere, by Mr. T. HOPKINS, 397.—On the Argument for the Physical Connection of Double Stars, deduced from the Theory of Probabilities, by Prof. FORBES, 398.—On Cometary Physics, by Prof. SMYTH, 399.—On a new Membrane investing the Crystalline Lens, by Sir D. BREWSTER: On some Phe-

nomena of the Polarization of the Atmosphere, by Sir D. Brewster, 400.—On the Dynactinometer, by Mr. Claudet: Attempt to explain the occasional distinct vision of rapidly revolving coloring sectors, by Prof. Stevelly, 401.—On the per-centage of Nitrogen as an Index to the nutritive Value of Food, by Dr. A. Voelcker, 403.—On a peculiar form produced in a Diamond when under the influence of the Voltaic Arc, by J. P. Gassiot, 404.—Report on the present State of our Knowledge of the Chemical Action of the Solar Radiations, by Mr. R. Hunt, 405.—New Researches on the Conductibility of heat, by Prof. Matteucci, 406.—On the Sugar Produce of the South of Spain, chiefly in connection with the employment of the Acetate of Lead and Sulphurous Acid as purifying agents, by Dr. Scoffern, 409.—On the Air and Water in Towns, and the action of Porous Strata on Water and Organic Matter, by Dr. R. A. Smith, 411.—On the Proportion of Phosphoric Acid in some Natural Waters, by Prof. Voelcker, 412.—The Phosphorescence of Potassium; by Mr. W. Petrie: On the presence of Fluorine in Blood and Milk, by Dr. G. Wilson, 413.—Another New Planet: Supposed Staurotide of Norwich, Mass.: General Index: Errata, 414.

General Index of Vols. I—X, Second Series, 415.

APPENDIX.

Report on Prof. Page's Electro-magnetic Engine; by Professor Walter R. Johnson, 473.

ERRATA.

Page 39, line 13 from bottom, for "John Garric, M.D.," read "John Gorrie, M.D."

Vol. ix, p. 277, 2nd line from bottom, for "carbonates," read "carburets."

" " " 281, 5th " " " for "zinc," read "lime."

" " " 239, 3d " " " for 67, read 87, and at top of next page, for 3 : 2, read 2 : 1, and for "one-half," read "the same."

Vol. ix, p. 422, 5th line from top, for "volume," read "weight."

" " " 409, 10th line from top, transpose 72·47 and 27·53.

" " " 429, 19th " " " for "pyroxene," read "borax."

Vol. x, p. 138, 2nd paragraph, for *Souyet*, read *Louyet*. See further, p. 414.